

US EPA ARCHIVE DOCUMENT

Data Evaluation Record

1. Chemical: Affirm Technical

Sha.No: 122804

2/13/1986

2. Test Material: MK-936 91% a.i.

3. Study Type: Fish 96-hr LC₅₀

Species Tested: Sheepshead Minnow

4. Study I.D.: Author: Ward, G. Scott

Title: Acute Toxicity of MK-936 to the Sheepshead Minnow
(Cyprinodon variegatus)

Laboratory: Environmental Science and Engineering, Inc.

Study No: 85-347-0100-2130

Study Date: October 1985

Study submitted to EPA by: Merck Sharp and Dohme Research
Laboratories

Acc. No: 259623

5. Reviewed By:

Daniel D. Rieder
Wildlife Biologist
EEB/HED

Signature: Daniel Rieder

Date: 1/31/86

6. Approved By:

Norm J. Cook
Supervisory Biologist
EEB/HED

Signature: Norman J. Cook

Date: 2.13.86

7. Conclusions: This study is scientifically sound.
96-hour LC₅₀ = 15 ppb
95% Confidence Limits = 11-20 ppb.
This study will fulfill the guideline
requirement for an estuarine fish acute
96-hour LC₅₀

OK ✓

8. Recommendations: N/A

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9. Background: This study was provided to support registration.

10. Individual Studies: N/A

11. Methods and Materials:

A. Test Material: MK-936

Percent active ingredient: 91%

B. Test Organisms: Sheepshead Minnow (Cyprinodon variegatus)

Source: S/P Inc.

Length: $\bar{X} = 12 \pm 1$ mm S.L.

Acclimation: 17 days, 0 hrs
without food

Organisms per container: 10

No. level: 10

Weight: $\bar{X} = 41 \pm 13$ mg
wet wt.

Loading: 0.046 g/l

C. Test Containers: Glass

Size: 10 liter with 9 liter
test solution

Replicates: 1

Aerated: No

D. Test Conditions: Static, renewal after 48 hrs.

Photoperiod: 14 hrs/day

Temperature: 19-21 °C

Controls: Solvent and untreated

Solvent: acetone

Test solution: Natural
Seawater

E. Statistics: Stephan, 1982, Moving average

12. Reported Results:

96-hour LC₅₀ = 15 ppm

95% C.L. = 11-20 ppb

CONCENTRATION PPB Nominal	MORTALITY			
	24Hrs	48Hrs	72Hrs	96Hrs
Control	0	0	0	0
Solvent Control	0	0	0	0
4.7	0	0	0	0
7.8	0	0	0	0
13	40	50	60	60
22	70	90	90	90
36	80	90	90	90
60	100	100	100	100

13. Study Authors Conclusions:

LC₅₀ (ppb) $\frac{24Hrs}{18}$ $\frac{48Hrs}{16}$ $\frac{72Hrs}{15}$ $\frac{96Hrs}{15}$

14. Reviewers Discussion and Interpretation of the Study:

- A. Test Procedures: The test procedure was acceptable.
- B. Statistical Analysis: The statistical analysis results are consistent with the raw mortality data.
- C. Discussion/Results: This test shows that MK-936 is very highly toxicity to estuarine fish.
- D. Adequacy of the Study: This study fulfills the guideline requirement for an estuarine fish LC50

15. Completion of One Liner for Study: One-liner completed

16. CBI Appendix: N/A